BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problems Mailbox.

Bureau des brevets Patent Office

Ottawa, Canada
K1A 0C9

(11) (C) 1,319,306

(21) 569,502

(22) 1988/06/15

(45) 1993/06/22

(52) 134-3.3

(51) INTL.CL.[5] A61K-7/02; A61K-7/48

(19)(CA) CANADIAN PATENT (12)

(54) Facial Cleansers

(72) Harashima, Asao , Japan
Yoshida, Keiji , Japan

(73) Dow Corning Toray Silicone Company, Limited , Japan

(30) (JP) Japan 149,778/87 1987/06/16

(57) 4 Claims

NO DRAWING

Canada

CCA 3254 (10-92) 41 7530-21-936-3254

ABSTRACT OF THE DISCLOSURE

FACIAL CLEANSERS

A facial cleanser composition is disclosed which comprises an organopolysiloxane elastomer powder and at least one other component typically used in facial cleansers, such as surfactants, emollients, fatty acids, alkali substances, alcohols, esters, humectants, thickeners, purified water, or mixtures thereof. The resultant cleansers are suitable for facial scrub materials that remove makeup and dirt. Preferably, the shape of the organopolysiloxane elastomer powder is spherical and its average particle size varies between 3 and 3,000 micrometers. Optionally, the organopolysiloxane elastomer powder content of the facial cleanser may range from 0.5 to 50 weight % of the total composition.

A

1319306

FACIAL CLEANSERS

The present invention relates to a facial cleanser, and more specifically relates to a facial cleanser which contains powdered organopolysiloxane elastomer.

The following materials have been compounded in facial cleansers for the purpose of effectively removing foundation and make-up cosmetics: plant powders such as those obtained from hydrogenated jojoba oil and hydrogenated coconut oil, as well as the seeds and powders obtained from the apricot, almond, birch, walnut, peach, corn, sunflower, watermelon, etc.; powders of materials of animal origin such as powdered crab shell, powdered eggshell, etc., as well as those obtained from hydrogenated beef tallow and hydrogenated lard; organic powders such as those obtained from polyethylene, nylon, polypropylene, polyvinyl chloride, polystyrene, and cellulose; and inorganic powders such as those obtained from aluminum oxide, silica, talc, and zirconium oxide (Cosmetics & Toiletries, Volume 101, July, 1986).

However, with regard to facial cleansers which contain such plant-based, animal-based, or inorganic powders as

listed above, the compounded powders are not spherical, but rather have acute angles, and also have a high hardness, and as a consequence thereof, the facial cleanser can damage the skin when applied. Furthermore, the powders of natural origin contain various admixed impurities, which can easily cause spoilage and promote skin irritation.

On the other hand, with regard to facial cleansers which contain organic powders, although the blended cosmetic will have a smooth application sensation when a spherical powder is used, it nevertheless evokes the sensation that a foreign-material is being applied to the skin due to the high hardness of the particles involved. Additionally, because contact with the skin is in the form of point contact, removal of dirt from the skin is unsatisfactory.

The object of the present invention is to solve the above problems by introducing a facial cleanser which will not irritate the skin, which is smooth in its application, and which efficiently removes organic dirt from the skin. The aforesaid object is achieved by a facial cleanser which characteristically contains an organopolysiloxane elastomer powder.

To explain the preceding, the organopolysiloxane elastomer used in the present invention provides the facial cleanser of the present invention with a smooth application

sensation and does not irritate the skin. Furthermore, because the particles of the powder are elastic, the removal of organic dirt from the skin is improved because contact with the skin is changed from point contact to a surface contact under the effect of the pressure of application.

Moreover, silicones have recently been compounded into foundation and make-up cosmetics. Silicones have much lower surface tensions than other cosmetic starting materials and thus readily adhere to the skin. Prior facial cleansers which contain non-silicone powders have an unsatisfactory silicone-removal action because these powders lack any affinity for silicones. The organopolysiloxane elastomer powder has affinity for the silicone starting materials compounded in cosmetics and thus can remove silicones adhering on the skin.

No specific restriction exists as to the type of curable organopolysiloxane composition which can serve as starting material for the organopolysiloxane elastomer powder. Examples in this respect are addition reaction-curing organopolysiloxane compositions which cure under platinum metal catalysis by the addition reaction between SiH-containing diorganopolysiloxane and organopolysiloxane having silicon-bonded vinyl groups; condensation-curing organopolysiloxane compositions which cure in the presence of an organotin compound by a dehydrogenation reaction between

hydroxyl-terminated diorganopolysiloxane and SiH-containing diorganopolysiloxane; condensation-curing organopolysiloxane compositions which cure, in the presence of an organotin compound or a titanate ester, by a condensation reaction between an hydroxyl-terminated diorganopolysiloxane and a hydrolyzable organosilane (this condensation reaction is exemplified by dehydration, alcohol-liberating, oxime-liberating, amine-liberating, amide-liberating, carboxyl-liberating, and ketone-liberating reactions); peroxide-curing organopolysiloxane compositions which thermally cure in the presence of an organoperoxide catalyst; and organopolysiloxane compositions which are cured by high-energy radiation, such as by gamma-rays, ultraviolet radiation, or electron beams.

Addition reaction-curing organopolysiloxane compositions are preferred for their rapid curing rates and excellent uniformity of curing. A particularly preferred addition reaction-curing organopolysiloxane composition is prepared from:

(A) an organopolysiloxane having at least 2 lower alkenyl groups in each molecule;

(B) an organopolysiloxane having at least 2 silicon-bonded hydrogen atoms in each molecule; and

(C) a platinum-type catalyst.

glycol, sorbitol, 1,3-butylene glycol, polyethylene glycol, urea, sodium lactate, sodium pyrrolidonecarboxylate, polypeptides, pyroalluronic acid, and acylamino acids.

The thickening agents are exemplified by natural polymers such as guar gum, carrageenan, alginic acid, gum arabic, tragacanth, pectin, starch, xanthan gum, gelatin, casein, and albumin; by semi-synthetic polymers such as starch derivatives, guar gum derivatives, locust bean gum derivatives, cellulose derivatives, and alginic acid derivatives; and by synthetic polymers such as polyvinyl alcohol, polyvinyl pyrrolidone, polyvinyl methacrylate, sodium polyacrylate, and polyethylene glycol. Furthermore, non-silicone powders may also be added to the facial cleanser of the present invention as long as the object of the present invention is not adversely affected. These non-silicone powders are exemplified by plant powders, such as the seeds and powders obtained from the apricot, almond, birch, walnut, peach, corn, sunflower, watermelon, etc., as well as hydrogenated jojoba oil and hydrogenated coconut oil; powders of animal origin such as powdered crab shell, powdered eggshell, etc., as well as hydrogenated beef tallow and hydrogenated lard; organic powders such as those obtained from polyethylene, nylon, polypropylene, polyvinyl chloride, polystyrene, and cellulose; as well as inorganic powders such as those obtained from aluminum oxide, silica, talc, and zirconium oxide.

EXAMPLES

The present invention will be explained in the following with reference to illustrative examples. In the examples, the term parts refers to weight parts.

EXAMPLE 1

The following were mixed to homogeneity: 100 parts dimethylvinylsiloxy-terminated dimethylpolysiloxane having the following formula:

$$CH_2 = CH(CH_3)_2SiO\ ([CH_3]_2SiO)_{80}\ Si(CH_3)_2CH = CH_2,$$

3.4 parts trimethylsiloxy-terminated methylhydrogenpolysiloxane having the following formula:

$$(CH_3)_3SiO\ ([CH_3]HSiO)_{35}\ Si(CH_3)_3,$$

0.3 parts polyoxyethylene (9EO) lauryl ether, and isopropanolic chloroplatinic acid in a quantity sufficient to give 100 ppm platinum metal proper based on the total quantity of organopolysiloxane. 100 Parts purified water was added and this was then passed through a colloid mill (colloid gap = 1 mm) and discharged into hot water (90 degrees Centigrade) to produce an organopolysiloxane elastomer powder. Using scanning electron microscopy, this organopolysiloxane elastomer powder was found to be spherical

and to have an average particle diameter of 250 micrometers. Furthermore, it was elastic.

A cleansing cream (foam) with the composition given in Table 1 was prepared using this organopolysiloxane elastomer powder. This cleansing cream was prepared as follows. Glycerol, potassium hydroxide, and water were mixed in advance at 70 degrees Centigrade, and this mixture was dripped into a mixture (heated at 70 degrees Centigrade) of stearic acid, palmitic acid, myristic acid, lauric acid, oleyl alcohol, lanolin-EO adduct and the organopolysiloxane elastomer powder, followed by cooling to room temperature (25 degrees Centigrade) upon the completion of addition.

Comparative Examples 1 and 2 consisted, respectively, of this same formulation, either containing the same amount of polyethylene powder (average particle diameter = 150 micrometers) in place of the organopolysiloxane elastomer powder or lacking any powder.

Collagen membranes were prepared in advance by coating a 7 cm diameter circular area with 0.1 g foundation having the composition given in Table 2. In each case, 0.1 g cleansing cream was applied and rubbed uniformly over the foundation region for 30 seconds using a finger, followed by wiping with a water-soaked towel for 10 seconds and then wiping with a dry towel.

In order to determine the cleansing effect of each cleansing cream, the brightness and angle of contact for water were determined on the cleaned collagen membrane respectively using a CR100 color-difference colorimeter from Minolta Camera Kabushiki Kaisha and a contact-angle measurement device from Erma Optical Works Limited.

Sensory testing of the application of each cleansing foam was conducted using a ten-member panel. The various results are reported in Table 3.

TABLE 1

component	Example 1 (parts)	Comparative Example 1 (parts)	Comparative Example 2 (parts)
stearic acid	10.0	10.0	10.0
palmitic acid	10.0	10.0	10.0
myristic acid	10.0	10.0	10.0
lauric acid	6.0	6.0	6.0
oleyl alcohol	1.5	1.5	1.5
lanolin-EO adduct	1.0	1.0	1.0
organopolysiloxane elastomer powder	5.0	0.0	0.0
polyethylene powder	0.0	5.0	0.0
glycerol	18.0	18.0	18.0
potassium hydroxide	3.5	3.5	3.5

TABLE 2

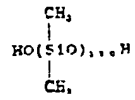
FORMULATION OF FOUNDATION USED IN EVALUATION OF CLEANSING EFFECT	
components	quantity in parts
silicone-treated titanium oxide (AS61D from Toshiki Pigment Kabushiki Kaisha)	40
dimethylpolysiloxane/200 cs	20
decamethylcyclopentasiloxane	30
liquid paraffin (mp 70 degrees Centigrade)	20
silicon dioxide (R972 from Nippon Aerosil Kabushiki Kaisha)	10

TABLE 3

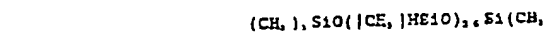
RESULTS OF THE EVALUATIONS			
	Example 1	Comparative Example 1	Comparative Example 2
brightness	50.1	55.3	58.9
contact angle	87°	95°	103°
sensory testing (number of panelists)			
too greasy	-	-	5
smooth	4	-	5
foreign-material sensation	6	3	-
irritating	-	7	-

EXAMPLE 2

A liquid mixture was prepared from 100 parts hydroxyl-terminated dimethylpolysiloxane having the following formula:



100 parts trimethylsiloxy-terminated methylhydrogenpolysiloxane having the following formula:



1 part stannous octoate, 1 part polyoxyethylene (8EO) oleyl ether, and 1,000 parts ion-exchanged water. This was then emulsified in a colloid mill, heated at 50 degrees Centigrade for 1 hour, and then spray-dried to produce an organopolysiloxane elastomer powder. Using scanning electron microscopy, this organopolysiloxane elastomer powder was found to be spherical and to have an average particle diameter of 150 micrometers. Furthermore, it was elastic.

A cleansing cream with the composition given in Table 6 was prepared as follows using this organopolysiloxane elastomer powder. Hot water (70 degrees Centigrade) was dripped into a melt-mixture (70 degrees Centigrade) prepared from the solid paraffin, beeswax, "vaseline",* liquid paraffin,

* Trademark for a brand of petrolatum (petroleum jelly).

A